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ABSTRACT

The atlas contains almost 40 photographs and 40 maps of geographical aspects of the Netherlands: the coast, dikes, canals, towns, and farmland. Each page contains a photograph, a section of a map showing the area in which the photograph was taken, and a discussion of several paragraphs about the geographical problems of the area and how they have been met. Many of the photographs are aerial, providing a clear view of canals and roads through towns, shipping and river traffic routes, and piers and dikes extending into coastal waters. Content includes the topographical differences between the "high" and "low" Netherlands, land reclamation, Zuyder Zee works, delta works, water control (reservoirs and shipping docks), river towns, horticulture, industry (pipelines and factories), foreign trade, inland motor traffic, recreation, and urban planning. The maps show features such as main, secondary, and unpaved roads, dikes, railways, canals, bridges and locks, church steeples, lighthouses, windmills and watermills, provincial boundaries, contours, fields and orchards, woodland, arable land, heath, and dunes. (AV)

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pictorial atlas of the netherlands

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Cover photograph - The Netherlands at a single glance: an aerial photograph taken at low altitude over Madurodam, a miniature city in The Hague, where a large number of well-known Dutch buildings have been assembled (at a scale of 1 : 25). With over 1 million visitors per annum, Madurodam is a major tourist attraction.

foreword

In 1970 the Information and Documentation Centre for the Geography of the Netherlands (IDG), at the request of the Ministry of Foreign Affairs, compiled a 'Compact Geography of the Netherlands', accompanied by a wall map for schools. This publication, of which there are now versions in twelve different languages, is distributed free of charge as a source of information to persons and institutions outside the Netherlands.

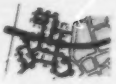
The publication proved to supply such a great need, particularly in geography teaching at the secondary and further education levels, that a completely revised second edition of the book and map was published in 1974.

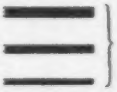
In addition, a small photo atlas has been compiled to complete the information package on the geography of the Netherlands. This atlas, which contains photographs and map sections accompanied by an analytical commentary, complements the contents of the 'Compact Geography'. In so doing, the work, with its frequent and considered use of bird's-eye views alongside map sections of the same area, also lends itself to modern didactical methods of working in the teaching and learning process.
On page 40 there is a map of the Netherlands which indicates the map sections and the places shown in the photographs.
Anyone wishing to use these or other photographs and maps for school books, atlases or other publications should contact a Dutch embassy or consulate or apply to the IDG (address: Geographical Institute of the State University, Heidelberglaan 2, Utrecht).

The Hague/Utrecht, 1977.

legend

Topographical maps on pages 4, 5, 6, 7, 8, 12, 13, 18, 19, 21, 30, 32, 33, 38,


Residential area


Main roads

Secondary roads

Unmetalled roads

Railway with station

Dike, 2.5 m and higher

Dike, between 1 and 2.5 m.

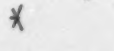
Canal

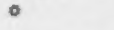
a. Bridge
b. Lock

Church steeple, high dome

Church without steeple

Lighthouse


Windmill


Watermill

National boundaries

Provincial boundaries

Municipal boundaries

Contours

12.4 Heights in metres

a. Fields with ditches
b. Orchard

c. Nursery
d. Greenhouses
e. Arable land

f–i. Woodland

j. Heath
k. Dunes

North

high and low netherlands

The north and west of the Netherlands consist mainly of flat, low lying areas, most of which were reclaimed from the water. Without constant care of the dikes, drainage canals and pumping stations this part of the country would be regularly submerged. The photograph and the map show a section of the Purmer, a polder in the province of North Holland covering some 2,700 ha (6,700 acres) which was formed in about 1620 by the drainage of a lake. The latter had been created by the digging away of the peat layers (for fuel) to below the groundwater level. A double dike was constructed around the polder, enclosing a ring canal between its inner and outer sections (centre of map) into which the surplus polder water was discharged for further transport to the sea, in this instance the former Zuyder Zee.
The map shows clearly the difference between the old peat landscape to the right with irregular parcels and lying at about 1 metre below sea level and the relatively younger landscape of the polder to the left, divided up more rationally and lying at between three and four metres below sea level.
Much of the flat land of the Lower Netherlands is used for cattle grazing, as in the photograph. The milk produced is transferred twice daily by boat to the metalled road (foreground). In the polder the old marine clay which was exposed under the peat is also used partly for arable farming (white parcels on the map).

Part of topographical map: 1 : 25,000, sheet 19G/H.
Compact Geography: pp. 6/7, 8/9, 10/11.

The east and south of the Netherlands show a different picture. The land is higher ('High Netherlands') so that the struggle against the water has not played such a dominant role there as in the Low Netherlands. The High Netherlands is also in part hillier and the land use displays greater variety. Apart from arable, livestock and horticultural holdings, there are woods and heaths. The photograph and map show a part of the Deelerwoud on the Veluwe (province of Gelderland). In the penultimate ice age tongues of ice from the glaciers here pushed the sand up into hills with summits more than 100 metres above sea level. The higher and, therefore, drier areas are largely covered by a heath vegetation, with scattered trees or clumps of trees. In the woods the original deciduous trees have been largely replaced by conifers. In the past too many heaths were reafforested. The Veluwe is of inestimable importance for recreation in a country that has otherwise few forests. An attempt is being made to ensure the preservation of these areas through the creation of national parks, such as the more than 1,000 hectares (2,500 acres) Deelerwoud illustrated here. Nevertheless, the Veluwe is being threatened by such things as new roads, housing and use for military training grounds.

Part of topographical map: 1 : 25,000, sheet 33D.
Compact Geography: pp. 6/7, 38/39.

struggle against the water, land reclamation

Along a large part of the Dutch coast man is helped by nature in his struggle against the water. At the beginning of the Holocene period and later in the first millenium A.D. chains of dunes were formed through the interplay of wind and water.

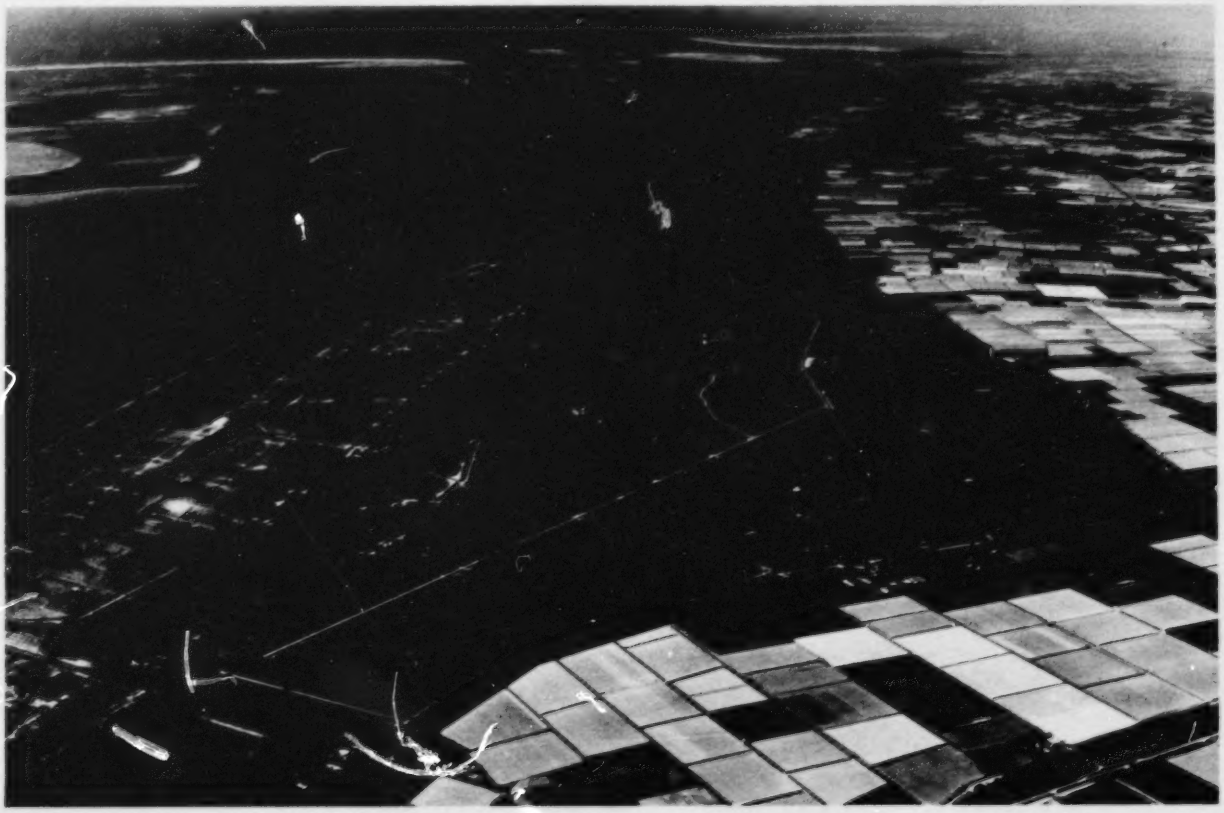
The photograph and map show a section of the south-west coast of the island of Walcheren in the province of Zeeland, looking north-west, with the North Sea on the left. In the foreground are the dunes, whose summits here reach heights of between 30 and 50 metres. The width of this part of the dune belt is about 250 metres. The steep slope on the seaward side shows clearly the effects of dune erosion by the sea. In the background the chain of dunes is considerably lower and narrower. In the middle of the photograph, opposite the village of Zoutelande, the dunes are almost completely absent. Here, a dike a kilometre long has been built to protect the land of Walcheren which lies at about sea level. In addition, the coast is protected against the tidal currents in the estuary of the Western Scheldt by breakwaters built of basalt blocks strengthened with piles, extending at right angles into the sea. The village of Zoutelande is mainly important as a bathing resort.

Topographical map: 1 : 25,000, sheet 48A.
Compact Geography: pp. 6/7.

In the northern Netherlands the dunes are situated on a series of islands separated from the mainland by the Wadden Sea. The coasts of the provinces of Friesland and Groningen are therefore protected wholly by dikes. On the seaward side of these dikes, marine clay is accreting which makes land reclamation possible. On the extreme right of the photograph (looking north east) and of the map, an old sea dike can be seen against which lies the village of Ferwerd. To the left, forming a division between arable and grassland, runs the present sea dike.

Seawards of this are the saltings, areas of land which have already been built up so high that they are now rarely covered by the tide and are used for such purposes as the grazing of sheep. Beyond these are the land reclamation works where accretion is being encouraged by means of small dams and artificial channels. On the far left is the Wadden Sea, large parts of which fall dry at low tide. The white band at the top of the photograph on the left is the eastern point of the Frisian island of Ameland.
The distance between the sea dike and the extreme limit of the reclamation works at the centre of the photograph is about 2 kilometres. The witdh of the Wadden Sea is here about 10 kilometres.

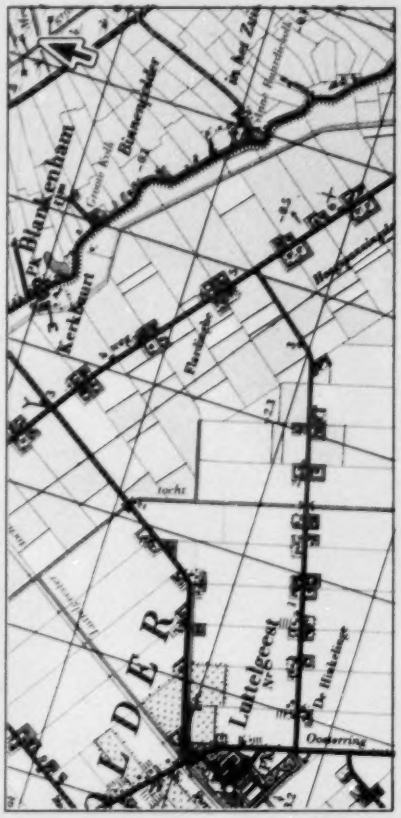
Part of topographical map: 1 : 50,000, sheet 5 East and 6 West.
Compact Geography: pp. 6/7 and 8/9.



zuyder zee works

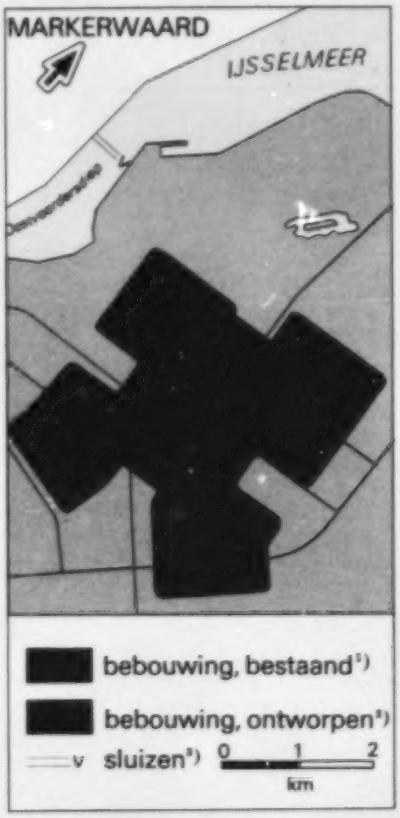
Perhaps the most interesting geographical aspect of the Zuyder Zee Project is the use that is made of the newly reclaimed land.
The photograph and map show an area in the east of the North East Polder. The view was taken (looking north-east) at the beginning of the 1950s. The lay-out is more or less complete, but the landscape is still bare and open.
The polder was planned almost exclusively for agricultural use. The standard units of 300 by 800 metres, have one short side bordering on the road, and the other on a canal. The smaller parcels within the standard units indicate that market gardening is practised in this part of the polder. The farmsteads are built on the holdings. The villages have solely a service function. In the left foreground is the village of Luttelgeest, which was still incomplete when the photograph was taken. It now has a population of more than 500. The population and facilities of most of these villages has remained well below expectation. A peripheral lake, such as occurs with the Flevo polders, is absent here. In consequence, the groundwater table of the adjoining old land, which is at a higher altitude, fell considerably, with unfortunate results. The former coastline is visible in the background (near Blankenham) with, behind it, the old peat landscape of north-west Overijssel.

Topographical map: 1 : 50,000, sheet 16 West.
Compact Geography: pp. 12/13.



In the Flevo polders, situated closer to the Dutch agglomeration known as the Randstad, a greater proportion of the land is used for urban expansion, industrial zones and recreation than in the older polders.
The photograph shows a section of Lelystad in Eastern Flevoland, looking north-west.
This town, intended for a population of 100,000, functions not only as the central town of the southern Lake IJssel polders but also receives overspill from the northern wing of the Randstad. The map shows how the town is being built in four stages, the first of which (see photograph) has now been almost completed.
In the middle, situated between two parallel town roads, is the centre of this neighbourhood, with, from right to left, sports fields, swimming bath, park, shopping centre and office buildings. North and south of the centre are situated the residential areas, consisting mainly of single family houses. The houses are built along residential streets which are free from through traffic. The residential areas are connected with each other by bridges carrying cyclists and pedestrians over the town roads. The town will be surrounded by woods (see photograph, left foreground).
In the left background are the Houtrib locks in the Oostvaardersdiep, which is the shipping route from Amsterdam to the north-east Netherlands and which will pass between Flevoland and the Markerwaard.

Map: Structure Plan for Lelystad (from the 'IJsselmeer Polders in Maps', IJsselmeer Polders Development Authority R.IJ.P.).
Compact Geography: pp. 12/13.



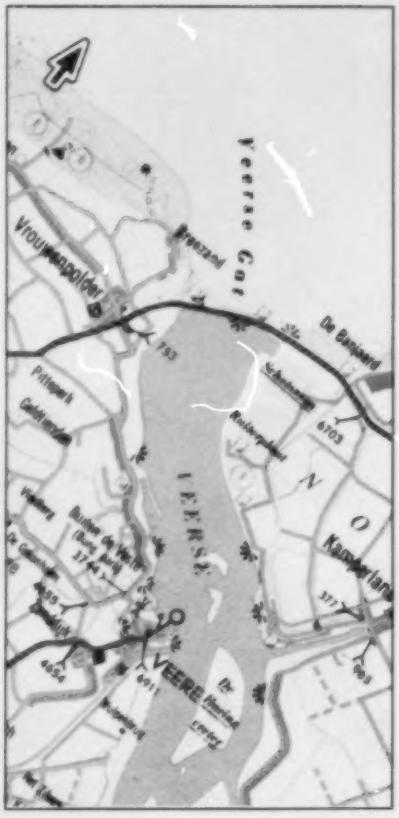
¹) built-up area - existing
²) built-up area - proposed
³) locks

delta works

The aim of the Delta Project is to reduce the danger of flooding in the South West Netherlands, one of its measures being to seal off five estuaries with dams.
The photograph and map show the western part of Lake Veere, looking north-west, with the small town of Veere in the foreground and the 2 kilometre long dam in the background, which has linked the island of Walcheren, to the left, with the island of North Beveland since 1961.
This area underwent great changes as a result of the closing of the Veere Gap.

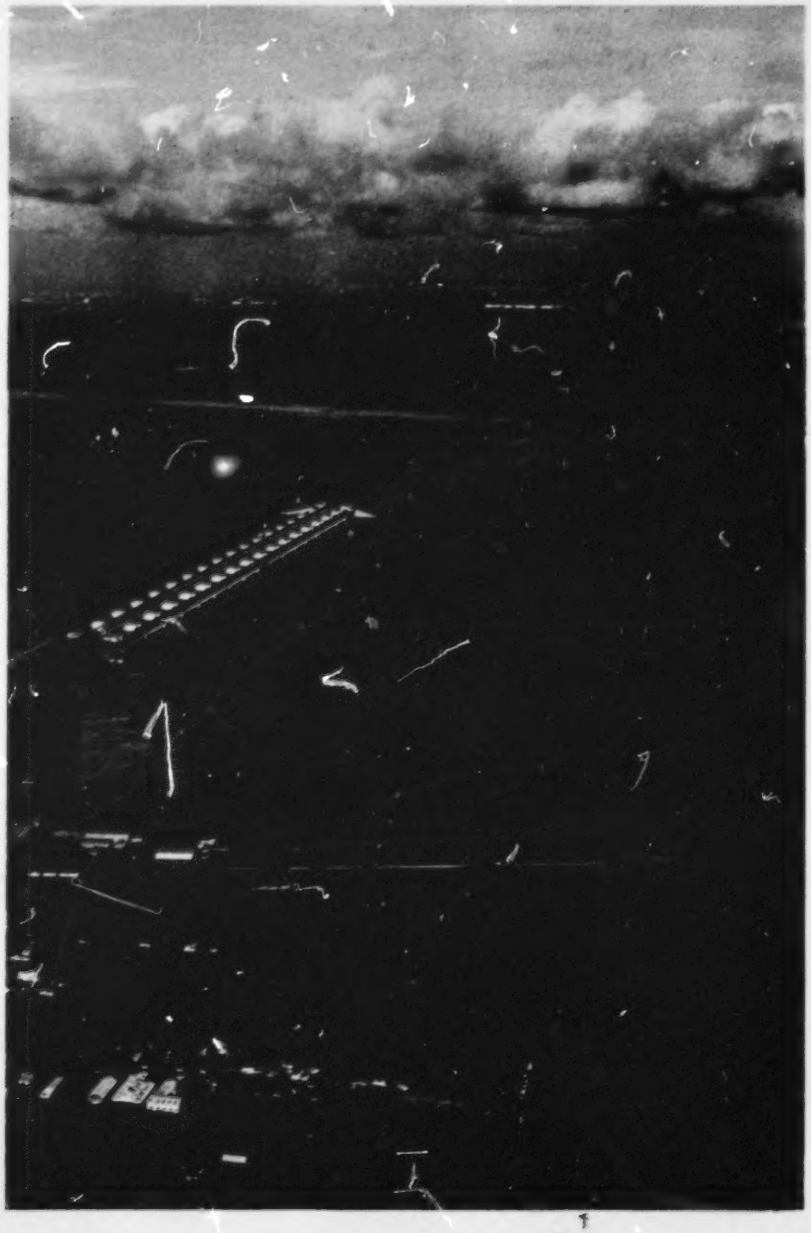
The links between the islands have been improved by the road over the dam and the lake behind the dam has developed rapidly into an important water-sport and shore-line recreation area.
The little mediaeval town of Veere shows very clearly the signs of its historical development. Many historic buildings bear witness to its former great prosperity as a fishing and commercial port such as the church built in the 14th, 15th and 16th centuries (foreground), the 15th century town hall (the slim tower to the right of and behind the church) and a number of handsome merchants' house along the waterfront. After 1961 the sailing yachts and motor cruisers of the tourists rapidly replaced the fishing boats in the harbour, which is visible in the photograph, on the north-west side of the town.

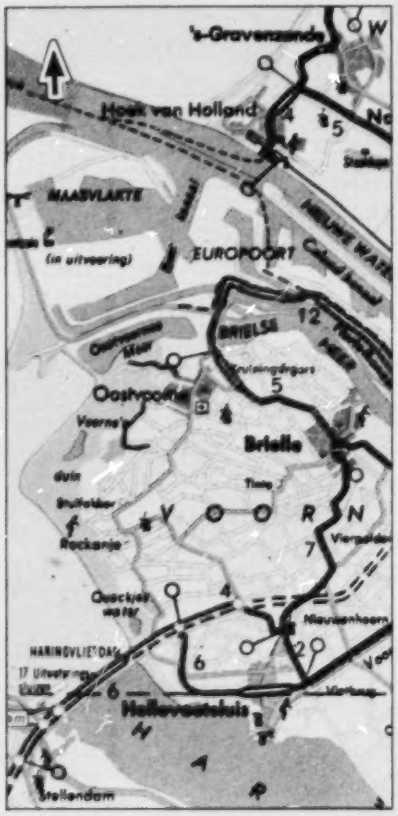
Map: ANWB tourist map of Zeeland, scale 1 : 100,000.
Compact Geography: pp. 14/15.



In addition to reducing the danger of flooding, the damming of the estuaries has made it possible to improve the water management of a large part of the Netherlands. An important instrument to this end is the dam in the Haringvliet shown in the photograph in a view looking north.
The dam has 17 outlet sluices, each of which is about 56 metres wide. The double-sided sluice complex serves both to keep out the salt sea-water (safety) and to hold back the fresh river-water.
Formerly the greater part of the discharge of the Rivers Rhine and Meuse found its way to the sea through the Haringvliet, but now this river-water flows mainly along the New Waterway past Rotterdam and so helps to combat the salination in that area.
In the event of high water levels in the rivers the gates in the Haringvliet dam can be raised to let the river-water through.
A four-lane motorway has been constructed on the 22 metre wide centre of the dam.
The new fishing harbour of the village of Stellendam situated a litter farther to the south can be seen in the foreground. The fishing boats can reach the North Sea by way of a shipping lock seen in the left foreground.
In the background is the island of Voorne-Putten with the Europoort and Maasvlakte area appearing vaguely on the horizon.

Map: ANWB motoring map of the Southern Netherlands, scale 1 : 200,000.
Compact Geography: pp. 14/15, 16/17.

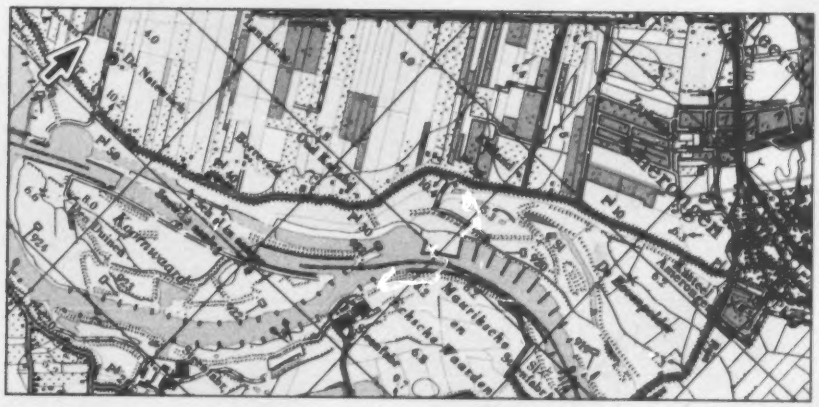




water control

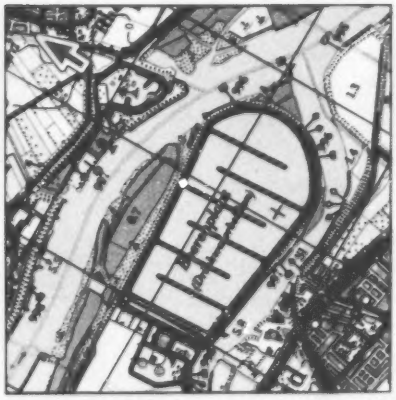
Besides the struggle *against* the water, the Netherlands is also concerned with the struggle *for* sufficient water for such purposes as shipping and drinking water supply.
Looking in a north-easterly direction, the photograph and map show one of the three weirs that were constructed across the Lower Rhine in the sixties. These weirs ensure that there is sufficient depth of water for navigation throughout the year, which is necessary because only about a quarter of the Rhine water is discharged by the Lower Rhine (the largest part is discharged by the Waal). A special construction method was employed. Two semi-circular gates can be lowered to hold back the water. When this is done, boats make use of the shipping lock to the left of the photograph. When the gates are raised shipping can pass without hindrance. On both sides of the river between the dike (see the winding road) and the water there are broad strips of land known as 'uiterwaarden' (forelands) which are sometimes flooded when river levels are high during the winter. The river silt which is then deposited is used as raw material by the brickmaking industry (extreme right).
On the left, the elongated parcels running at right angles to the dike are used as pasture or for orchards. The farmsteads are situated on or near the dike. In the distance are the villages of Leersum (left) and Amerongen, lying at the foot of the Utrecht Hill Ridge.

Part of topographical map: 1 : 50,000, sheet 39 West and East.
Compact Geography: pp. 16/17.



Whereas the demands of shipping on water management are mainly concerned with quantity, it is quality that is the most important aspect for the drinking water supply.
The photograph and map show the waterworks which supply Rotterdam and which are situated to the south of the city between the rivers Old Meuse and Spui. In this part of the country, in particular, the quality of the drinking water is a great problem because of the salination of the groundwater and the pollution of the river water.
The works consist of two sections, a 135 hectares (330 acres) open-air reservoir (left, above the inlet pumping station) and a number of service buildings, including the large, square filter building, the two round reservoirs for pure water with, between them, the high-pressure pumping station for the supply to Rotterdam and the office and laboratory block in a pond to the right. The principle of the reservoir system is the storage of relatively less polluted river water during periods of high water levels in the rivers for use during the periods of low water levels. Now that the reservoirs are also filled with water from the recently completed reservoirs in the Biesbos (ca. 25 kilometres to the south-east and filled with water from the Meuse which is less polluted than that of the Rhine), water quality has been further improved.

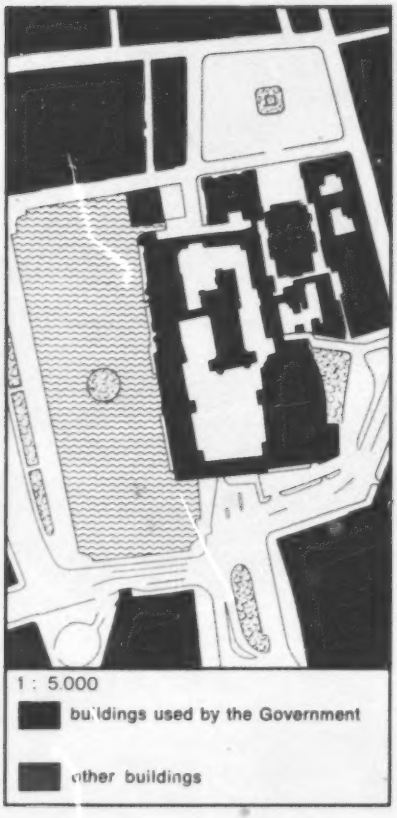
Part of topographical map: 1 : 25,000, sheet 37G.
Compact Geography: pp. 16/17.



randstad I

The West Netherlands conurbation, known as the Randstad, is composed of a number of towns and cities, most of which have a specific function in relation to the whole.
The photograph and plan show the centre of The Hague, which is the seat of government of the Netherlands, but not the country's capital!
The central feature is the Gothic Hall of the Knights, scene of the annual opening of the States-General, which is surrounded by a hollow square of buildings. The whole complex dates from the 13th century when it was built as the castle of the Counts of Holland. Only the Court Pond (left in the photograph) remains of the moats and ponds which originally surrounded the whole.
The map shows the concentration of buildings in which the central government offices are housed in this part of The Hague. In order to meet the growing need for office space new offices have been built elsewhere in the city and in the suburbs. It has also been decided to move a number of government departments to other parts of the country in order to relieve the Randstad and encourage growth in such areas as the North Netherlands. The residential function of the city, particularly of the centre and the redevelopment areas, has greatly declined, as is shown by the decrease in population from 606,800 in 1959 to 482,900 in 1975.

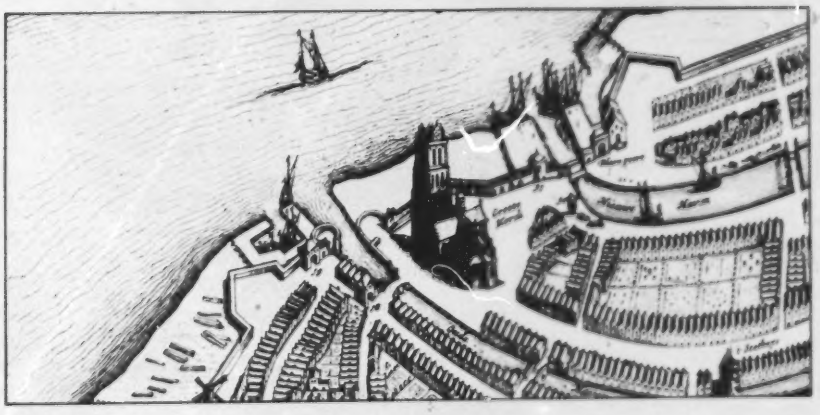
Map: detailed plan of The Hague, scale 1 : 5,000.
Compact Cartography: pp. 20/21, 22/23.



Several towns in the Randstad are important as ports and trading centres. Since the dune coast lacks natural harbours it is understandable that the port towns developed inland along the rivers. One of the oldest of these is Dordrecht which is illustrated here. It is a town that has played a very important part in Dutch history. The church, built in the 13th and 14th centuries, bears impressive witness to this. The town has a particularly favourable location in respect of shipping, i.e. at a point in the delta of the West Netherlands where four rivers converge.

Both the photograph and the 17th century map by Johan Blaeu show how the town is built on and around the water (in the foreground of the photograph, the Old Meuse) and how this permitted shipping and commerce to penetrate deep into the town. Cargo vessels have partly made way for pleasure yachts in the old inner basin (left in the photograph). New basins have been dug south of the town which can be used for larger ships. At the present time Dordrecht as a port and an industrial and residential town clearly falls within the sphere of influence of Rotterdam. It is important as a transhipment port and has a great variety of industries.

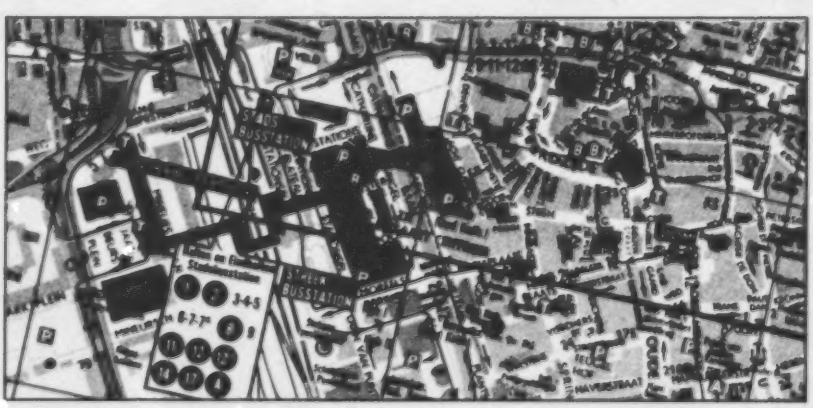
Map: Ioannes Blaeu, Dordrecht (section).
Compact Geography: pp. 22/23.



randstad II

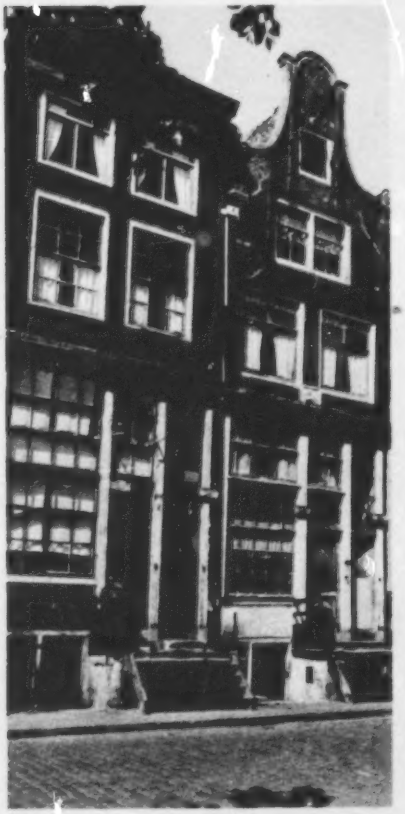
Adaptation of cities to the demands of modern traffic usually results in extensive development projects as in the 'Hoog Catharijne' Project in Utrecht, illustrated in the map and photograph. Originating as a Roman settlement on what was then the main tributary of the Rhine (see the curving canal on the map section), Utrecht is one of the oldest Dutch cities. It is situated right in the middle of the country, which explains its functions as a railway node and centre for trade fairs.
The 'Hoog Catharijne' Project, which has been carried out around the Central Station, in collaboration by the City Council, Netherlands Railways and the Trade Fair, is related directly to the latter function. An extensive complex of shops, offices, conference rooms etc., has been designed, which is directly accessible from the railway station and from seven multi-storey car parks included in the plan. A 19th century residential quarter, of which a remnant is still visible, centre left, and a barracks are being cleared to make room for all this.
The photograph, taken in 1973 looking north-east, shows in the foreground a multi-storey car park, a hotel, an office block and a trade fair building (right). Behind the station is the main concentration of shops, abutting onto the old city centre in the background. All the elements are linked together by an elevated pedestrian network; see, for example, the covered footway over the railway tracks and station platforms.

Map: Extract from the Falk Plan of Utrecht, scale 1 : 12,500.
Compact Geography: pp. 22/23.



Another aspect of the concern for old town centres is the restoration of valuable old buildings which have been designated monuments, a process giving rise to a number of problems. The photographs show a row of houses on an Amsterdam quay, before and after restoration. This quay, the Zandhoek, can be found at the extreme bottom left of the map extract.
All the premises coloured black on the map are included in the list of historic buildings. Of the 40,000 historic buildings in the Netherlands, nearly 7,000, or more than 17%, are situated in Amsterdam. A great many of them are to be found in the oldest part of the city (top) and along the canals constructed in concentric semi-circles around the centre in the 16th and 17th centuries. The restoration and upkeep of these premises is extremely costly. For example, the 205 restorations carried out in Amsterdam in 1973 cost over 52 million guilders, 17% of which was contributed by the municipality, 13% by the State and 2% by the provincial government.
Note the variety of gables in this row of typical 17th century Amsterdam houses with their hoist-blocks, the basements and the carved stone tablets in the façades, usually depicting the profession or occupation of the earlier residents.

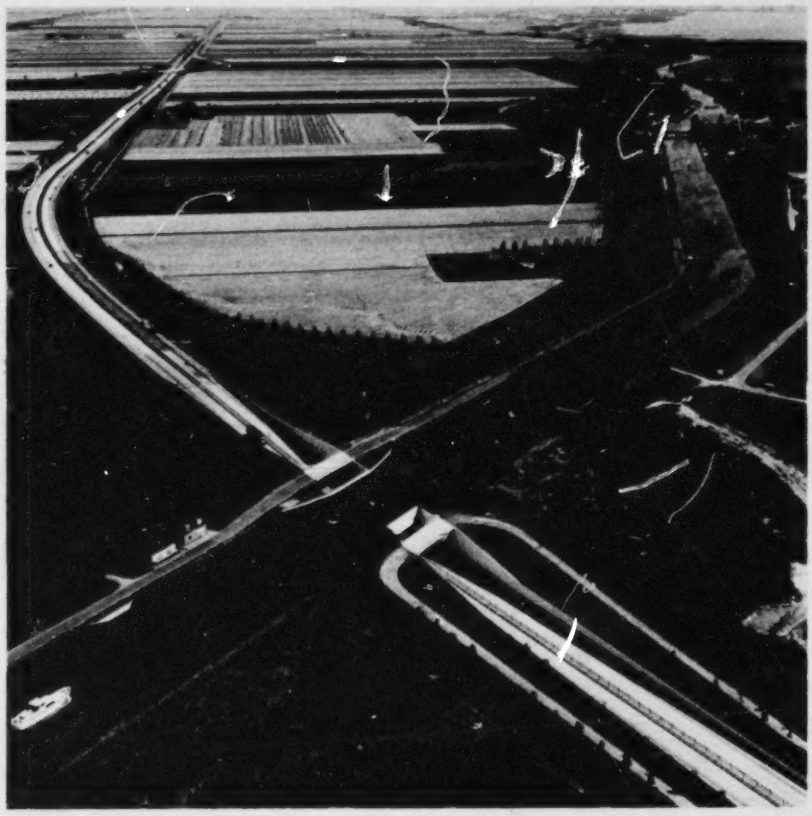
Map: data: Public Works Department, Amsterdam.
Compact Geography: pp. 22/23.



agriculture

In the Netherlands there are quite a number of different types of farming, resulting from adaptation to the varied nature of the soil and the varying situations on the national and international markets.
The photograph and map illustrate the first of these. The view, looking towards the north-east, is of a part of the Haarlemmermeer polder (left) and adjoining area.
The polder was created in 1852 in the same way as the 17th century polders in North Holland (cf. p. 4) although the power for pumping was now supplied by steam. This again was a low-lying reclaimed lake (4 to 5 metres below sea level) with a bed of old marine clay adjoining somewhat less low-lying peat-lands where the peat has been partly dug away.
There is a marked difference in the pattern of parcels and land use of the two areas: arable farming on the reclaimed lake, livestock grazing and horticulture (partly under glass) on the peat-lands.
The ring canal of the Haarlemmermeer runs across the photograph, crossing the E.10 motorway from The Hague to Amsterdam in the foreground by means of an aqueduct.
In the right background are the Westeinder lakes which were not drained after the peat had been dug away because the sub-soil here proved to consist not of clay but of sand. These lakes are now of great importance for recreation.

Part of map: Topographical map 1 : 50,000, sheet 31 West.
Compact Geography: pp. 26/27.



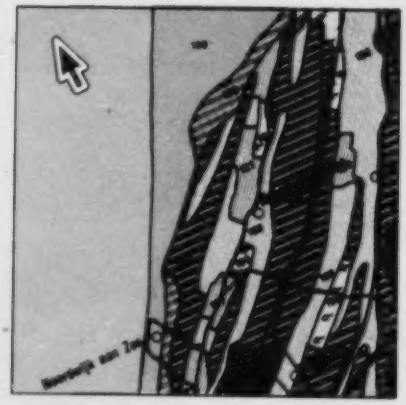
The 'High Netherlands' presents a completely different landscape picture. The soil type is mainly sand. The agricultural holdings, where both arable and livestock farming are practised, are smaller and the pattern of parcels is more irregular than in the Low Netherlands.
The photograph and map show a part of the province of Gelderland east of the River IJssel (looking north-east). On the right is the village of Almen situated near the little river Berkel (foreground). The Twente Canal crosses the photograph and map with the Zutphen-Hengelo railway line some distance behind. Large parts of this landscape have been reclaimed only during the past century. The farmsteads are mostly built on the holdings, sometimes in small clusters (hamlets), as on the left of the photograph. The economic situation of these generally small farms is not very thriving. The farmers often collaborate in co-operatives (for buying and selling, use of machinery, etc.). The buildings of such a co-operative can be seen along the canal, near the bridge on the left of the photograph and map (Transport of artificial fertiliser etc by canal boat). In many of these areas an attempt has been made to improve the economic situation of the farmers by means of radical land consolidation projects. There is a danger here, however, that the varied and attractive landscape may be seriously spoilt.

Part of map: Topographical map 1 : 25,000, sheet No. 33F.
Compact Geography: pp. 26/27.

Horticulture

Favourable soil and climatic conditions, high population densities, favourable commercial location and a high standard of education of the agricultural population are some of the factors which have contributed to the emergence of an important horticultural industry in the Netherlands.
A well-known branch of this industry is the growing of flower bulbs, which has a long history, particularly in the area between Haarlem and Leiden behind the young dunes, which were formed between 1 and 2 thousand years ago. Here are to be found the remains of older dunes and sand-bars, now largely dug away, alternating with lower-lying areas of peaty soil (see the soil map).
It is the lime-rich sandy soils of the excavated old dunes that are particularly suited to bulb growing. The flowers are only of secondary interest. The photograph shows how the flowers are cut off at an early stage in order not to exhaust the bulbs and mostly thrown away as waste. The crocus, daffodil, tulip, hyacinth and other bulbs are exported all over the world. In spring the bulb district attracts thousands of visitors from home and abroad. Many also visit the 'Keukenhof' (see the windmill), an undulating park on the old dunes where every imaginable species of bulb is exhibited.

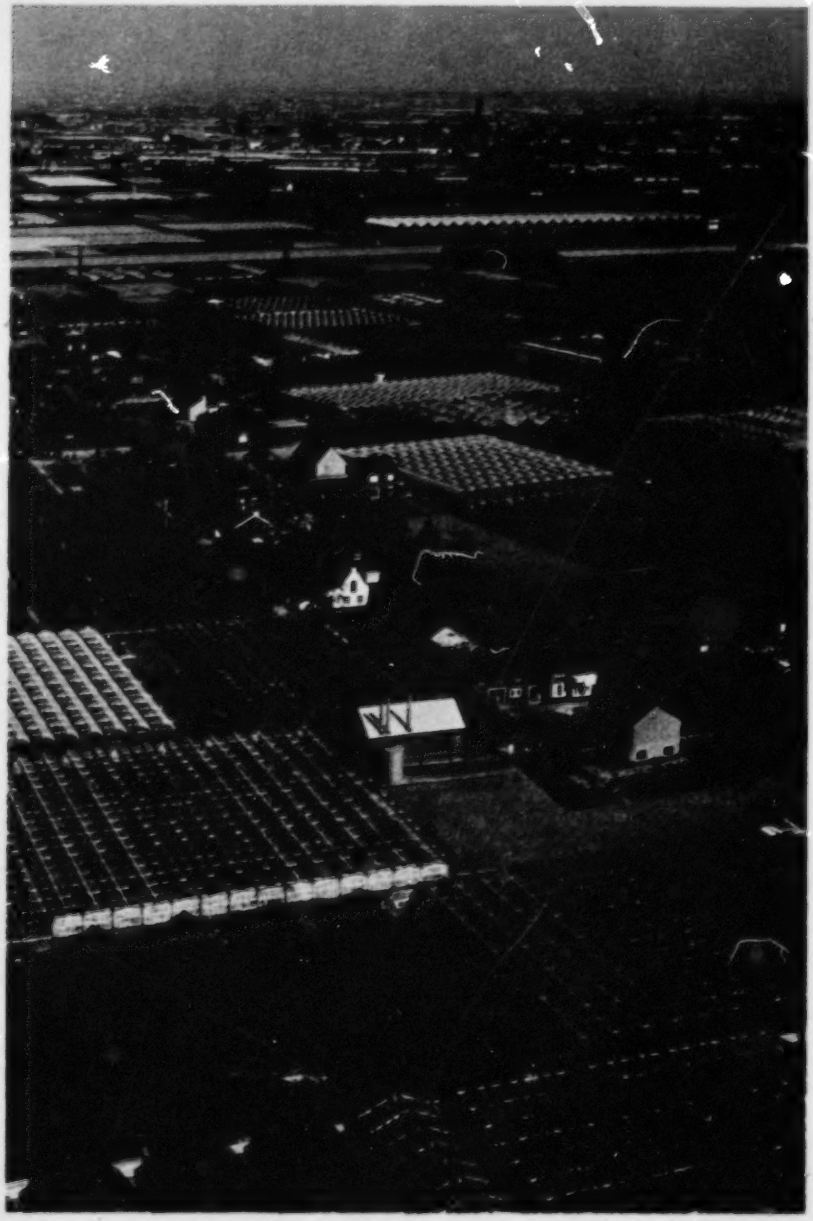
Map: from the 'Atlas of the Netherlands' soil map of South Holland and Utrecht, 1 : 200.000,
Compact Geography: pp. 25/27.



100 = young dunes
128 = old sand-bars
135 = sandy peat soils

The Westland, situated between The Hague, Rotterdam and Hook of Holland, is an important horticultural area. The horticultural crops are grown here almost exclusively under glass (the 'Glass City').
The photograph (looking north) and the map show a part of this area situated south of Naaldwijk (background); the houses in the foreground are built along the Groene Weg, bottom left on the map section. As early as the 17th century horticulture was practised here on soils to which dune sand had been added to raise the ground level. Important changes have taken place especially since around 1900. These include the increasing use of heated glasshouses and a constantly expanding production for export. Further adaptation is taking place all the time. Grape growing has almost died out as a result of competition from France and Italy within the E.E.C.; in addition to lettuce, cucumbers and tomatoes (exported mainly to the Federal Republic of Germany), many flowers and ornamental plants are also grown. The holdings are small (average 1 hectare) and highly labour and capital-intensive. The trading risks are high as a consequence of high investments, fluctuating market prices, damage from technical breakdowns, hail and high winds. Products are disposed of through a few very large co-operative auctions.
The photograph shows both small, older glasshouses and large, continuous complexes, within which the heating, ventilation, watering and application of fertiliser are controlled automatically.

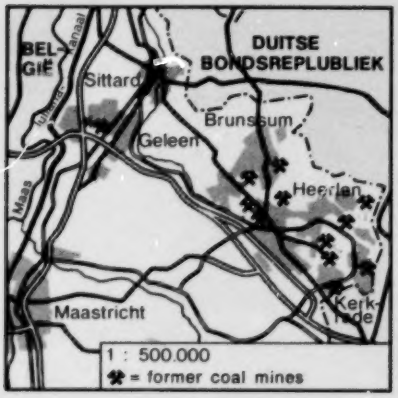
Part of topographical map: 1 : 25,000, sheet 37B.
Compact Geography: pp. 26/27.

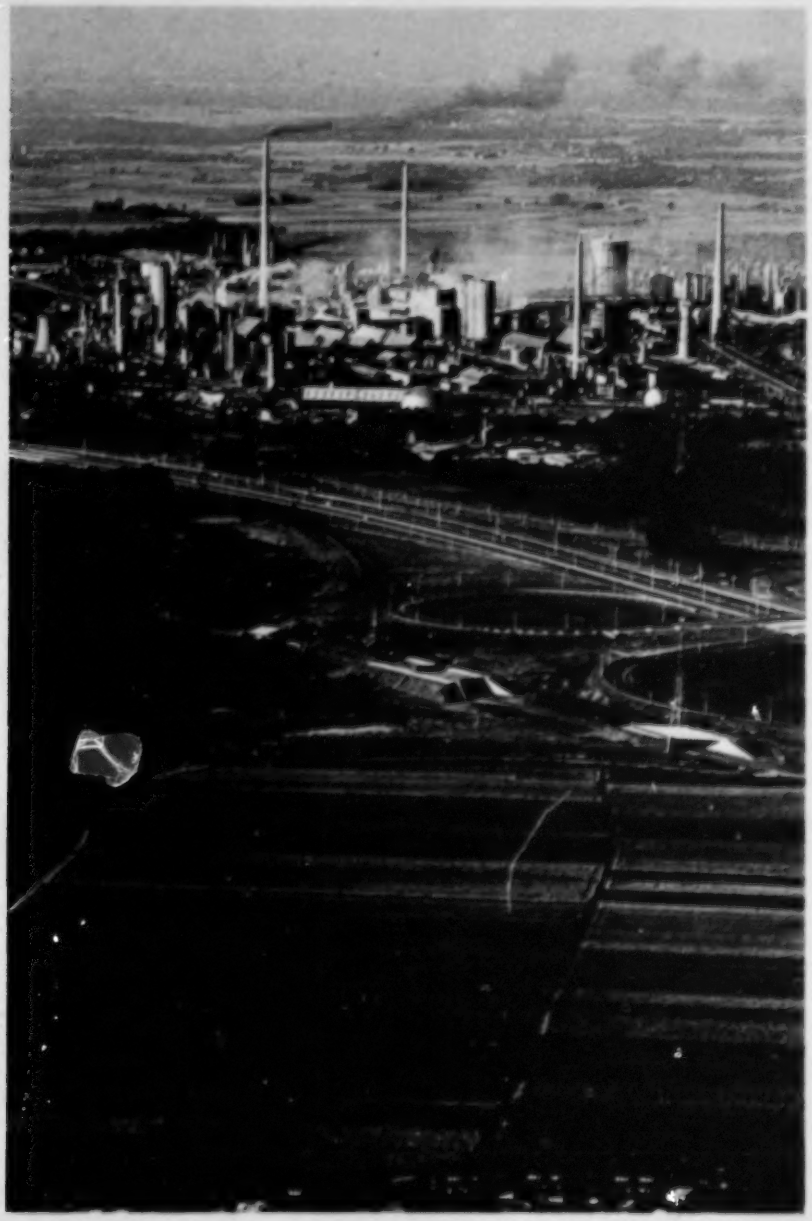


industry I

Between about 1900 and 1975 coal was mined in South Limburg in twelve pits.
The map shows that most of the mines were located near the German border, where the coal was at its shallowest. Newer mines were sunk farther to the west, where coal with a higher gas content was dug at greater depths. This coal proved to be an excellent raw material for the chemical industry.
The photograph (taken looking NE near Geleen) shows a part of the DSM (Dutch State Mines) polychemical plant (on the map), situated in a diversified landscape that becomes increasingly hilly towards the south. Industry here profits from the favourable transport facilities by water (the Juliana Canal), rail and road (the E9 on the photograph from Maastricht to Amsterdam).
All the collieries were closed between 1966 and 1975 because of the increasing production costs in the mines and the vast finds of natural gas in the North Netherlands. This necessitated a radical restructuring programme, particularly in the Eastern Mine District, involving the establishment of new secondary and tertiary enterprises. The chemical industry in the Western Mine District was maintained, thanks to the import of petroleum by pipeline, via Rotterdam-Europoort, and of natural gas from the North Netherlands.

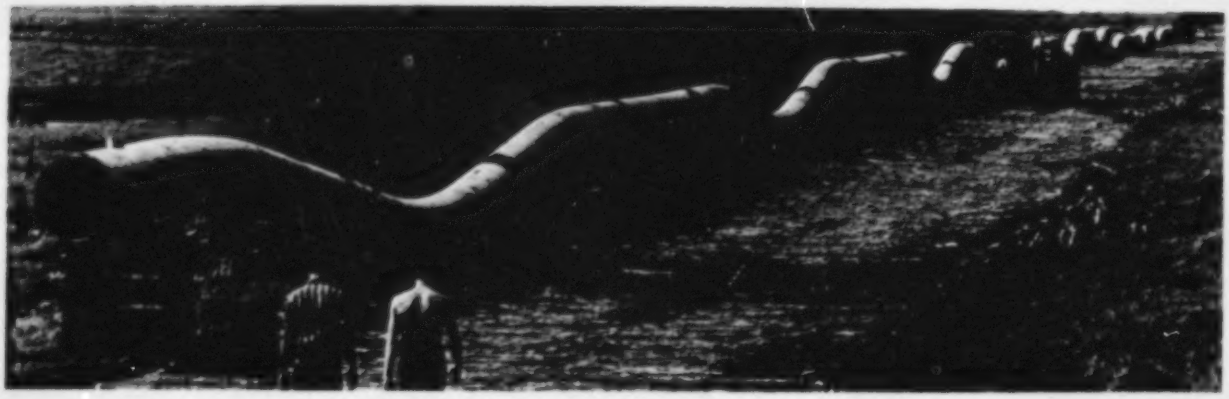
Map: from the 'Grote Bosatlas', Wolters-Noordhoff, Groningen. Compact Geography: pp. 28/29.





The discovery of a very large quantity of gas in the province of Groningen in 1959 (see map), brought about a revolution in the county's energy supply. It accelerated the phasing out of coal-mining (see p. 22). All over the country appliances and installations in homes and businesses were converted to use natural gas, while a pipeline network 9,000 kilometres long was laid to transport the gas. This enabled it to be supplied to the local gas distribution plants, power stations, large factories and to other countries.
The laying of the pipelines in this country, with its high density of infrastructure, cost many headaches. In the photograph (bottom) a length of gasmain is ready to be placed in its trench. The bends are at points where ditches cross. The other photograph was taken at point X on the map.
The Continental Shelf of the North Sea offers the possibility of new supplies of oil and gas (see map). Exploration has been intensified, particularly since the energy crisis of 1973.

Map: showing the concession areas for extraction of minerals.
Compact Geography: pp. 28/29.

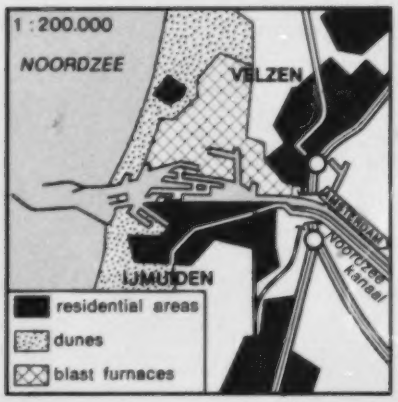


industry II

The rise of industry in the Netherlands was the result not so much of the country's mineral resources, as of its position on the North Sea and the commerce to which this gave rise. This is illustrated by the fact that, although no metal ores are mined in the Netherlands, metal manufacture is the largest branch of industry.
The iron and steel plant that was established in 1918 is located on the coast at the entrance to the North Sea Canal, where iron ore and (since the closing of the coal mines) coke are imported by ship.

The photograph and map show the entrance to this canal, looking east. The nature of the beach and dune coast causes problems for shipping and the chain of dunes had to be cut through for the construction of the canal in 1876, while long piers were built out into the sea in order to keep the canal accessible to the ever larger ships. The canal forms a direct connection for sea-going ships between Amsterdam and the North Sea, thus making the long detour via the Zuyder Zee unnecessary. There are locks at both ends of the canal. The locks at the western end, in particular, are very large in order to accommodate the ships going to and coming from Amsterdam. Access to the blast-furnace basins in Velsen (left) and to the fishing port of IJmuiden (right) is from the seaward side of these locks.

Map of the mouth of the North Sea Canal and surroundings.
Compact Geography: pp. 30/31, 32/33, 36/37.



2503

Later than in the West, industry also developed in the inland provinces, attracted by local raw materials derived from farming or mining, or by low wages. Eindhoven was one of the small towns in the province of North Brabant where the labour-intensive textile and cigar industries became established. After the Philips brothers opened their electric light factory in 1891, there followed a period of very rapid growth.
The photograph shows how this concern dominates the town: factory buildings in the background, the Evoluon – a permanent Philips exhibition – in the foreground.
This insignificant town, which had about 5,000 inhabitants in 1900, expanded in seventy-five years to become the fifth largest town in the country with a population of 192,000 in 1975. This was partly through the annexation of a number of adjacent municipalities. Because of these annexations the town developed at first in the form of a star and the suburbs retained their village character for a long time. After 1945 a more continuous urban development was created by the filling in of the intervening green sectors.
Industry attracts many workers from outside. The map shows the inward commuting from the conurbation, which has a population of 350,000, from outside the conurbation and from Belgium. In addition, some dozens of Philips factories have been established elsewhere in the Netherlands and in other countries.

Map: data: Eindhoven Agglomeration Committee.
Compact Geography: pp. 30/31, 32/33.

industry III

After 1945, the port of Rotterdam underwent a period of rapid development accompanied by a westwards expansion of the basins and industrial sites. It was particularly the industries concerned with bulk cargoes such as petroleum and ores that were concentrated on deepwater sites close to the sea. A great deal of the petrochemical industry became established along the southern bank of the New Waterway, which has been the shipping channel from Rotterdam to the sea since 1872. As a result of this the island of Rozenburg underwent great changes which can be illustrated from a comparison of two map sections. What was formerly an agricultural island measuring about three miles across is now an industrial zone dissected by shipping canals and docks.

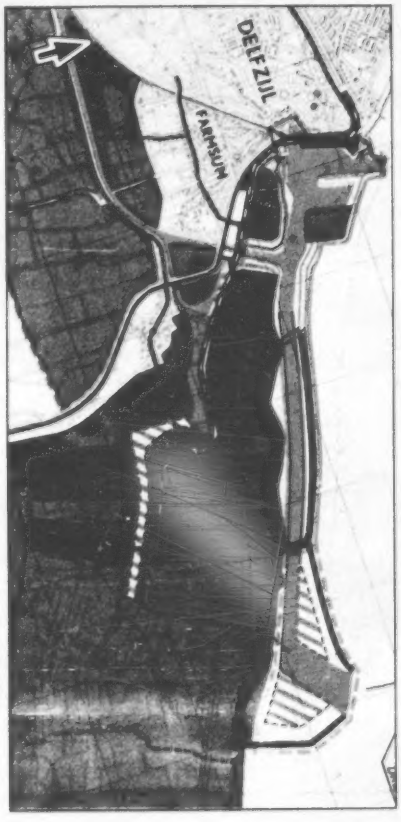
The photograph, taken looking WNW, shows the island just west of the village of Rozenburg (see right-hand map section). The four parallel waterways, each with its own function, are, from extreme right to left, the New Waterway for sea shipping from and to Rotterdam, the Caland Canal for sea shipping from and to the Europort and petroleum basins, the Hartel Canal for inland shipping and Lake Briel for watersport and shoreline recreation. In the foreground, the Rozenburg Lock connecting the Caland and Hartel Canals. On the far left, the island of Voorne-Putten.

Map: sections from the Bos School Atlas, Wolters-Noordhoff, 1947 and 1976 editions.
Compact Geography: pp. 32/33, 36/37.

In addition to the great port cities in the West, there are others elsewhere along the coast, such as Delfzijl in NE Groningen. The town, situated on the Eems, developed after the war into the fifth port of the country. In the photograph, taken looking WNW, Delfzijl can be seen in the right background, with the Eems Canal to the city of Groningen in the distance on the left. The photograph shows the stage of development reached a few years ago. The port area and the number of factories have since been increased, for which purpose the little village of Oterdum, seen in the immediate foreground against the massive sea dike, has had to disappear. With the creation of a new navigable channel to the sea outside the dike (far right on the map and photograph), the port is now accessible to ships up to 15,000 tons.
In the middle of the photograph the elongated production building of Aluminium Delfzijl, where bauxite from Surinam has been processed since 1965. The supply of natural gas from the Groningen field has made it possible to meet the great demand of this industry for electricity.

The rapid port and industrial developments in this region (a further port project is being carried out north-west of Delfzijl) are giving rise to great concern among conservationists in the Dollard-Eems-Wadden Sea region.

Map: Report of the Seaport Consultative Committee.
Compact Geography: pp. 30/31, 35/33.



area designated for port use (1971)

areas suitable for expansion

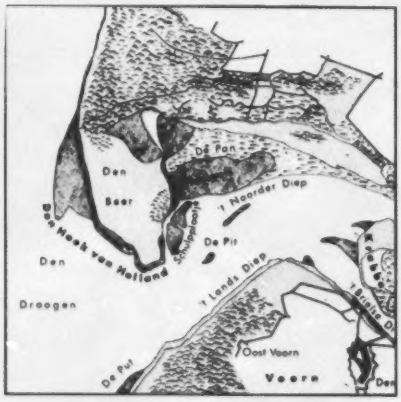
foreign trade and traffic

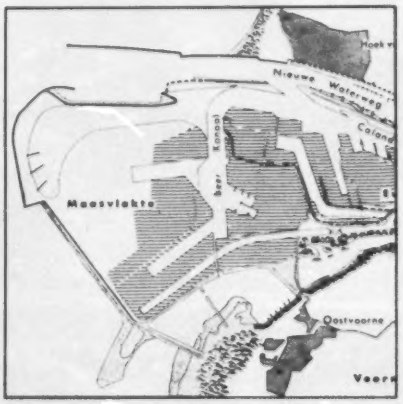
The favourable location of the Netherlands on the North Sea and at the mouths of the Rhine, Meuse and Scheldt has made it an important trading country. An important factor in this is the transhipment of goods from seagoing ship to river ship, train, truck and vice-versa.
The photograph shows two sections of the Waalhaven in Rotterdam, excavated in about 1930 (in the centre, pier No. 3, see map). The basins situated farther to the east (Rijnhaven, Maashaven, etc.) are older, while those farther to the west, such as the Eemhaven, are newer. The Waalhaven and Eemhaven have a depth of 13.50 metres. Radar beacons from Rotterdam to the sea (R on the map) keep shipping moving during fog. Important changes have occurred in methods of transhipment. On the left of the photograph can be seen the traditional method of transfer from seagoing to river ship or vice-versa. Later came containers, which are particularly important for the transhipment of general cargo. The southern basins of the Eemhaven, situated along the motorway and railway, have been equipped for this purpose (see map: ECT). Of still more recent date is the LASH ship (photograph). It is a seagoing vessel that carries lighters loaded with bulk or general cargo, which are lowered into the water by means of equipment fitted on the ship. Transport inland is performed with the aid of pusher-tugs.

Map: Rotterdam/Europort, scale 1: 80,000, City of Rotterdam Port Service.
Compact Geography: pp. 34/35, 36/37.

The size of ships used for the transport of bulk cargoes is constantly increasing and ever larger and deeper navigation channels and docks are needed for loading and discharging them. For this reason Rotterdam has extended its port system to the coast and even out into the sea – Europort and Maasvlakte (Meuse Flat).
The three map sections show the radical changes this has brought about in the area south of the Hook of Holland. In the mid-18th century (top map) there was a stretch of unspoilt countryside known as 'De Beer', with a wide river estuary to the south of it. By 1900 (centre map) the estuary had largely sanded up and the artificial New Waterway separating 'De Beer' from the Hook of Holland had been constructed. In about 1970 (bottom map) the former nature reserve was recalled only by the name of the Beer Canal, which provides access to the docks of the Maasvlakte (Meuse Flat), built out into the sea. A completely new port entrance has also been constructed. As a result of dredging the New Waterway, Caland Canal, docks and an 8-mile long channel into the sea to a depth of 23 metres, ships up to 250,000 tons can be handled.
In the photograph, taken looking east, a large tanker is entering the Caland Canal. On the right is an installation for the transhipment of ore with, behind it, the petrochemical industry on the island of Rozenburg.

Map: City of Rotterdam Cartographic Service, scale ca. 1 : 150,000.
Compact Geography: pp. 34/35, 36/37.





inland traffic

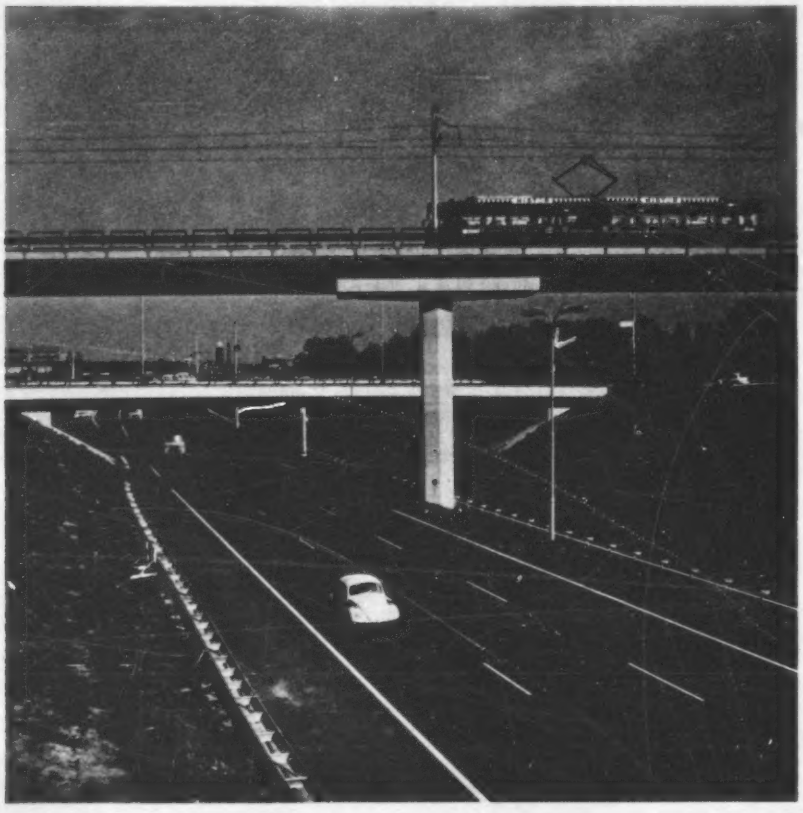
In no other country is such a high proportion of inland goods transport effected by water. The figure is about one third of all ton-kilometres. This is made possible by a dense network of rivers and canals that is regularly adapted to the needs of modern shipping. The map and photograph (looking north) show where the Juliana Canal (bottom left) enters the River Meuse (top left) near the village of Maasbracht (right) in the province of Limburg, through a three-stage lock complex with a difference in level a twelf metres. This canal was dug between 1921 and 1935, parallel to the Meuse, which here forms the frontier with Belgium. It was necessary because the river was unsuitable for the growing transport of coal from South Limburg on account of its many bends, the steep gradient and fluctuating water-levels. Nowadays, instead of coal, the canal carries industrial products (including cement and fertiliser) and gravel dredged from the bed of the river (left on the photograph and map).
The large and deep gravel pits are often used for recreational purposes after gravel extraction has ceased.

In the background, the bridge carrying the E9 Maastricht-Amsterdam motorway over the Meuse.

Map: Section of topographical map 1 : 50,000, sheets 58-West and 60-West.
Compact Geography: pp. 34/35.

For many years the greatest increase in inland transport has been on the roads. Increasing use is being made of the motor vehicle both for passenger and goods transport. For a long time road construction tried to keep pace with this growth in traffic.
The photograph shows a section of the diamond of motorways built around Rotterdam between 1960 and 1975. Shortage of land, environmental pollution and the energy problem are gradually setting the limits to this unbridled road building.
Other possibilities must be sought, particularly for passenger transport. Good public transport has proved indispensable for peak hour traffic in and around the major cities. In view of its great capacity and speed, preference should be given to rail transport on segregated tracks. The left-hand photograph, for example, shows a viaduct for the Rotterdam municipal tramway. Commuting traffic is also of increasing importance for the Netherlands Railways. The right-hand photograph shows a 'parking stop' (Heemstede near Haarlem), many of which have been created in recent years. It is a simple suburban station provided with a car park and cycle sheds connected with the neighbouring towns by fast and frequent modern trains.

Map: Railway stations opened in the Western Netherlands since 1960.
Compact Geography: pp. 34/35.

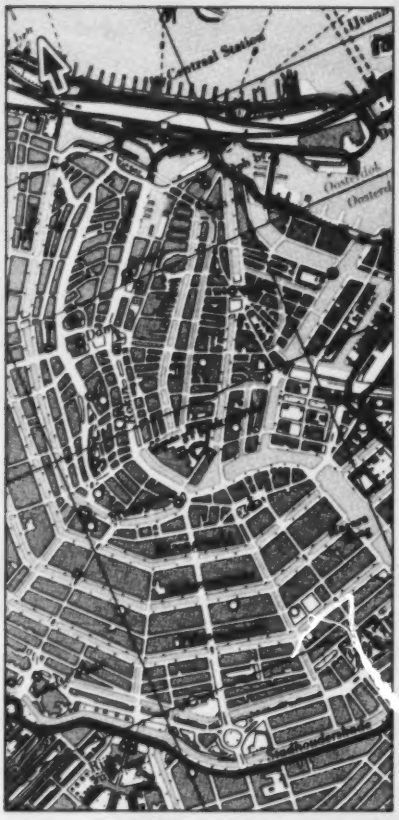


¹) stations opened since 1960

amsterdam/rotterdam I

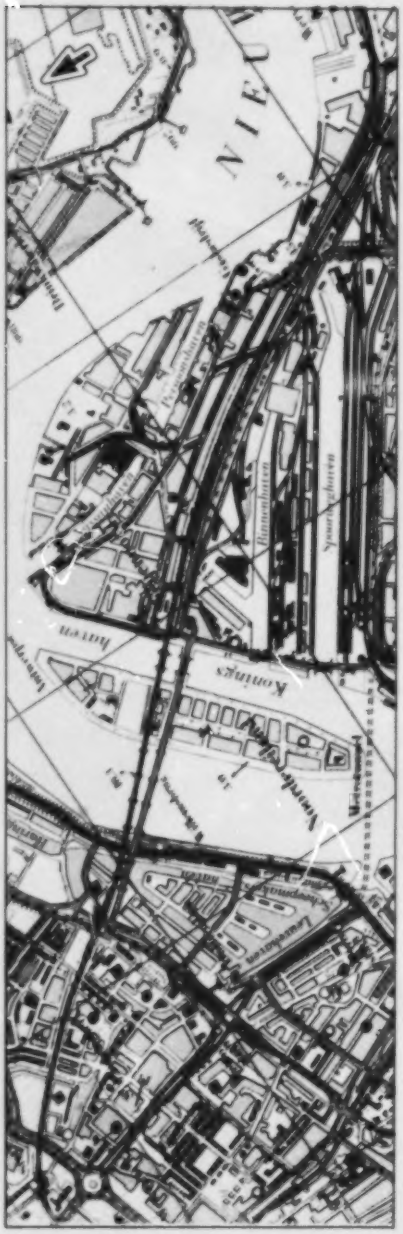
This photograph of the centre of Amsterdam, taken looking north, shows the oldest part of the city.
The meanders of the River Amstel are visible running from bottom right to top centre. At the river mouth was situated the fishing village which expanded into the port of Amsterdam after a dam was built in the river in the 13th century. The Dam can be seen to left centre of the photograph. It is now a spacious square, bounded on the west side by the 17th century Royal Palace, originally the City Hall.
The photograph and map show clearly how the town planning principles of the 17th and 18th centuries resulted in a concentric pattern of canal girdles. The docks were traditionally situated to the east of the city, where the Amstel enters the Y, the open stretch of water from which ships sailed into the Zuyder Zee on their way to the North Sea. When the North Sea Canal was opened in 1876, the port activities began to move westwards. The citizens of Amsterdam were deprived of their view of the Y in 1889 when the Central Station was opened on an artificial island (see photograph and map).

Part of topographical map: 1 : 25,000, sheet 25E, G.
Compact Geography: pp. 36/37.



Almost the whole of the centre of Rotterdam was destroyed by bombing in 1940. The municipality expropriated all the land and drew up a plan for a new centre. There arose a modern city centre based in broad outline on the pre war street pattern and with a clear division of administrative, commercial and cultural activities.
The photograph shows the new centre, looking SE In the background is the New Meuse, crossed by rail and road bridges where the river is divided by the Noordereiland. The excavation of the docks beyond after 1870 heralded the revival of the port of Rotterdam after the decline of the 18th and 19th centuries.
The City Hall (with tower) is visible on the Coolsingel, which runs from bottom left to the centre of the photograph. It was one of the few buildings to survive in 1940. The same is true of the St. Laurens Church which was nevertheless badly damaged, diagonally to the left behind the City Hall. By extending the Coolsingel in the direction of the river a more direct connection was created between the city and the port.
The postwar reconstruction made possible an adaption to the demands of modern traffic. See the wide roads and large car parks.

Part of topographical map: 1 : 25,000, sheet 37F, H.
Compact Geography: pp. 36/37.



amsterdam/rotterdam II

With the rise of modern industry began a process of rapid urbanisation. There are extensive residential districts, particularly in the large towns of the West, built around 1900, where the dwellings fall far below present-day standards (see photograph below, Amsterdam-East / see * on map). Another period of rapid housing development began after 1945, when the arrears of five years of war had to be made good. As far as quantity is concerned, this stage has ended, so that there is no longer a housing shortage. As far as quality is concerned, however, much remains to be done. In the old city centres restoration, redevelopment and renovation activities are everywhere in progress. There is increasing resistance to the demolition of old dwellings to be replaced by office blocks etc., both on the part of the occupants, who do not want to leave their neighbourhoods, and of the town planners, who fear the depopulation of the city centres. Where possible, it is now the policy to improve old dwellings, or to replace them by new dwellings on the same site. New development also has its problems, however. In order to save land and money, many high rise flats were built (see background of the photograph above, Amsterdam-Buitenveldert), yet the majority of the population prefers a single family house with front and back gardens, as in the foreground of the photograph.

Map: extensions of Amsterdam, from Atlas of the Netherlands, 1-2. Compact Geography: pp. 36/37.

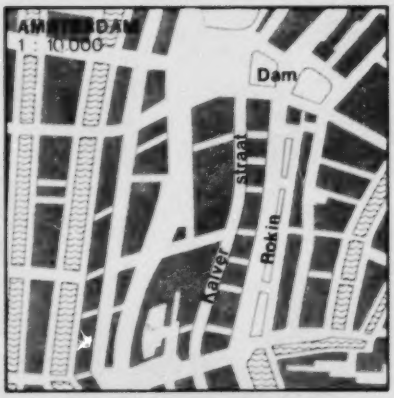
The centre of Rotterdam underwent a number of changes in the process of reconstruction. As a result of the lay-out of wider streets (see right map section) and the erection of mainly shops, offices and cultural buildings, the number of dwellings was considerably reduced. The pre war total of 25,000 dwellings fell to 6,000 in the present centre.

The concentration of road traffic into a limited number of main arteries (see photograph on p. 33) made possible the creation of a number of traffic-free shopping streets. The first and best known of these was the Lijnbaan (see to the right of the map and photo-graph), a project that aroused great interest in the Netherlands and abroad and was widely imitated.

There are no longer traditional shopping streets such as the Amsterdam Kalver-straat (see bottom map section and left-hand photograph) in the new centre of Rotterdam. In many towns in recent years narrow streets of this kind have been closed to traffic and made more attractive to shoppers with the aid of decorative paving, flower boxes, etc. Such renewals are symptomatic of the competition between the shopping centres in the old city centres and those in the new residential suburbs.

Map: sections from Falk street plans, 1 : 10,000.

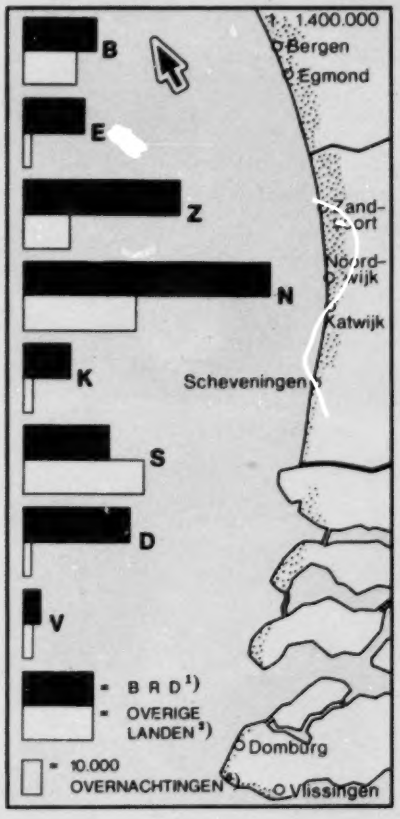
Compact Geography: pp. 36/37.



recreation

The aim of environmental planning is to divide the available space as fairly as possible between such uses as residence, employment, traffic and recreation. As far as open-air recreation is concerned, the greatest difficulties occur in the conurbation in the west of the country. Population density and the degree of urbanisation are greatest here, while the polderland offers few opportunities for open-air recreation.
The forests and heaths on the sands of the south and east Netherlands form important recreational areas, and they are much used for week-ends and longer holidays by town dwellers from the western provinces. The opportunities in the west for daytrips, which require areas with a high capacity at a short distance from the cities, are very limited. The most important recreational areas here are the lakes in the peat region of Holland and Utrecht and the North Sea coast. Accordingly, on fine summer days, these areas, together with their car parks and the roads leading to them, are packed to capacity. The photograph shows the beach, pier and promenade at Scheveningen (The Hague), the country's largest seaside resort, which is visited by many foreigners, particularly Germans (see map). Apart from being a seaside resort, Scheveningen is a fishing port and has a ferry service to Great Britain.

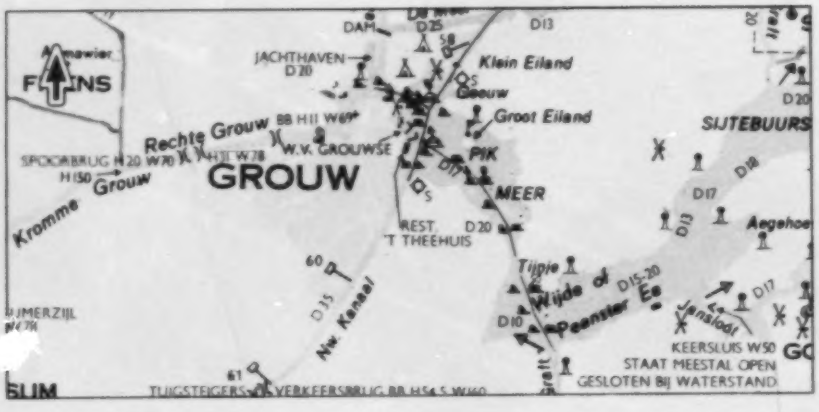
Map: numbers of Dutch and foreign holiday-makers staying at a number of coastal resorts (west coast), C.B.S. Compact Geography: pp. 38/40.



[1]) Germans
[2]) Other nationalities
[3]) Overnight stays

Recreational opportunities are greater outside the western coastal provinces. The hills of South Limburg, the varied landscapes on the sands of the south and east (see p. 18) and the Frisian lakes in the north are of great importance in this respect, as are the new recreational areas in the Zuyder Zee and Delta regions. The photograph shows the annual sailing race between old cargo vessels (skûtjes) on the Pikmeer near Grouw in Friesland.
The lakes here were also partly created by the removal of the peat (cf. pp. 4 and 18), but they were not subsequently reclaimed, because they were indispensable for the collection of water from the surrounding polders and the bottom proved to consist mainly of sand. There was also a smaller demand for new agricultural land in this thinly populated province.
Now aquatic sports are the main source of income for an originally agricultural village like Grouw. In the background of the photograph a large camping site can be seen.
Left is a section from a special water sports map.
The lakes are still also important for commercial shipping, particularly since they were linked up by the Princess Margriet Canal, which is the main shipping route between Lake IJssel and the city of Groningen. Right, a winter-sports scene: skating on the frozen rivers and canals.

Map: part of ANWB Water Sports Map of the Frisian Lakes, 1 : 50,000.
Compact Geography: pp. 38/40.



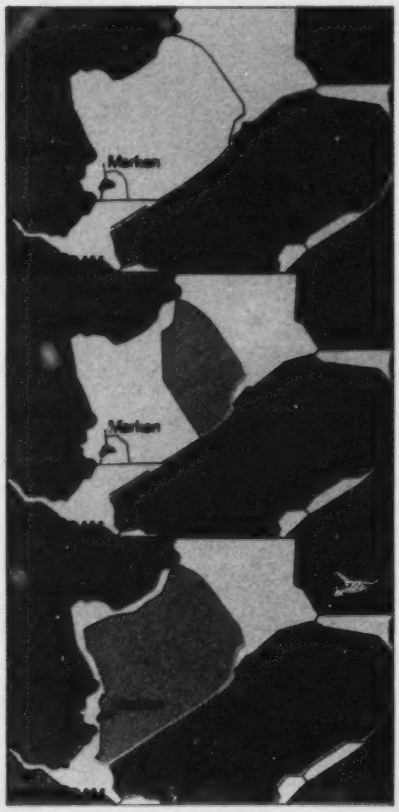
physical planning

A quotation from the section of 'Space Demands' in the Third Memorandum on Physical Planning (1974): 'In 1970, about 8% of the national territory was built up, but if the present trends continue this figure will be 16% in 2000'. The following quotation appears under the heading 'Second Thoughts': 'The increase in space consumption makes it necessary to set limits to certain growth possibilities. Some areas are being felt to be 'replete' to an ever increasing extent'.
The photograph (taken looking east) and map of Purmerend in the province of North Holland show how difficult it is to realise all the aims of modern physical planning. In the foreground, the old town that has traditionally served as a centre for the surrounding countryside. Behind it, the new residential estates built to accommodate the growth of the northern wing of the Randstad. The two new urban districts are separated by the Enkhuizen-Amsterdam railway line and a commuter station has been built there.
It is understandable that the southern district, in particular (on the right in the photograph), has aroused much criticism. The many high rise buildings are out of place in a small provincial town, do not meet the wishes of the population and overpower the spacious, flat polder landscape (cf. photograph 1, p. 4).

Map: part of topographical map 1 : 25,000, sheet 19G.
Compact Geography: pp. 38/40.

Physical planning is increasingly concerned with guiding continually changing processes rather than establishing future structures.
As a conclusion to this booklet, the accompanying photograph and maps illustrate this continual change in past and future.
In the foreground of the photograph is the little Zuyder Zee town of Enkhuizen in the province of North Holland (viewed looking SE), where impressive buildings in the old centre bear witness to an illustrious past as a trading and fishing port. The town's importance declined mainly because of the rise of Amsterdam. In the background, the dike to Lelystad, closed in 1975 and forming part of the Zuyder Zee project.
The maps, taken from a report of the Department of Transport and Public Works dealing with alternatives for the Markerwaard (the final Lake IJssel polder), show that the future role of this dike has not yet been decided. In the first alternative, which dispenses entirely with reclamation, the sole function of the dike will be to separate the northern and southern basins of Lake IJssel. In the second map, the dike will form the north-eastern side of a small polder on the Enkhuizen Sand, while the third map shows the Markerwaard approximately as it was originally planned.

Map: from 'Beschouwingen over de Markerwaard' (Observations on the Markerwaard), published by the Department of Transport and Public Works.
Compact Geography: pp. 38/40, 12/13.



Key to photographs. The numbers on the map indicate the pages where the photographs appear and the location of the places concerned. The page-numbers for the photographs taken in Amsterdam and Rotterdam, are not shown.